Bay Area Air Quality Management District
Risk Screening Assessment, A# 8144
Conoco Phillips, GDF# 5444
September 17, 2003

This document describes the basis for the health risk screening assessment prepared for Conoco Phllips Company, 2445 Castro Valley Boulevard, Castro Valley, California 94546. This facility wishes to increase the throughput at their gasoline dispensing facility (GDF). In order to do this, the facility must get a permit from the Bay Area Air Quality Management District (BAAQMD). The BAAQMD, as a routine part of the evaluation of a permit application, prepared this screening risk assessment.

Benzene, a toxic air contaminant and a carcinogen, will be emitted during the operation of the GDF. BAAQMD staff evaluates the possible impact of the benzene emissions that will occur during routine operation of the GDF. The benzene emission impact is expressed as an increased risk of contracting cancer by individuals who live or work near the GDF.

The estimated increases in benzene emissions that can be expected from this source are 34.64 pounds per year for the allowable increase of 6.9561 million gallons per year. Ambient air concentrations of benzene were predicted using the ISCST3 air dispersion computer model. This model uses information about the facility and the emission rates of toxic air contaminants to estimate what concentrations would be expected in the air at various locations around the site. The estimated concentrations of benzene are used to calculate the possible cancer risk that might be expected to arise from this exposure.

The potential cancer risk was calculated using standard risk assessment methodology. For residents, they include the assumptions that exposures are continuous for 24 hours per day, 7 days per week for 70-years. For students the assumptions include higher breathing rates for children and that exposures are for 36 weeks per year over a 9-year period. The cancer risk is based on the "best estimates" of plausible cancer potencies as determined by the California Office of Environmental Health Hazard Assessment (OEHHA). The actual cancer risk, which cannot be determined, may approach zero. This type of analysis is considered to be health-protective.

The potential for noncancer health effects is evaluated by comparing the long-term exposure level to a Reference Exposure Level (REL). A REL is a concentration level or dose at or below which no adverse health effects are anticipated. RELs are designed to protect the most sensitive individuals in the population. Comparisons to RELs are made by determining the hazard index, which is the ratio of the estimated exposure level to the REL.

The proposed operation would result in an increased maximum cancer risk of 10 chances in a million and a hazard index of 0.005 for maximally exposed residents near the facility. Risk to maximally exposed receptors at the near–by industries is 0.61 in a million and the hazard index is 0.01. For the students who attend Redwood Christian School and Strobridge Elementary School the risks are 0.102 and 0.01 respectively and the hazard indices are 0.001 and 0.001 respectively. These health risk values, presented in the table below, meet the criteria for acceptable levels established in the BAAQMD's Risk Management Policy.

Health Risk Results		
Receptor	**Increased Maximum Cancer Risk**	**Hazard Index**
Residential	10.000 chances in a million	0.005
Industrial	3.124 chances in a million	0.010
Redwood Christian School	0.102 chances in a million	0.001
Strobridge Elementary School	0.010 chances in a million	0.001

School address:

Redwood Christian School
20600 John Street
Castro Valley, Ca 94546

Strobridge Elementary School
21400 Bedford Drvive
Castro Valley, Ca 94546